

and having the records in a form common to all the observers, so as to admit of rigid comparisons:—when this is done, not only in India but in Europe, meteorologists will be in a better condition to generalize and propound normal conditions, than the state of our knowledge at present would justify.

The author states that he is indebted to that very able and zealous meteorologist, Dr. Buist of Bombay, for the protracted curves of pressure of the barometer appended to his paper.

A paper was also read, entitled “On the Structure and Use of the Ligamentum rotundum Uteri, with some observations upon the change which takes place in the structure of the Uterus during Utero-gestation.” By G. Rainey, Esq., M.R.C.S.E., Demonstrator of Anatomy, St. Thomas’s Hospital. Communicated by Joseph H. Green, Esq., F.R.S.

The author first refers to the discovery of the difference which exists between the two classes of muscles; the voluntary, or those with striped fibres, and the involuntary, or those with unstriped fibres. He then notices that the opinion which is entertained respecting the round ligaments being composed of the unstriped variety of muscular fibre is incorrect, these organs consisting chiefly of the striped muscular fibre.

In support of the accuracy of this assertion, the author alleges the following facts:—

First, that the round ligament arises by three tendinous and fleshy fasciculi; one, from the tendon of the internal oblique, near the symphysis pubis, a middle one from the superior column of the external abdominal ring, the third from the inferior column of the same: from these points the fibres pass backwards and outwards, and uniting form a rounded cord—the round ligament; after which, traversing the broad ligament, they go to be inserted into the angle of the uterus.

The striped fibres are principally situated in its centre, and extend from its origin to within an inch or two of the fundus uteri; as they approach which, the fibres gradually lose the striated character and degenerate into fasciculi of granular fibres of the same kind as those of the Dartos muscle; both these fibres presenting similar microscopic characters when acted upon by glycerine.

The author then states that the round ligament does not pass through the external ring to be lost in the labia and mons veneris; and argues from the fact of their consisting mainly of striped fibres, &c., that their use cannot be merely mechanical or subservient to the process of utero-gestation, and therefore he concludes that its function must be connected in some way with the process of copulation.

He also adverts to the necessity of examining the round ligament by the microscope in glycerine in preference to any other fluid; as this substance renders the cellular tissue mixed with the fibres more transparent without diminishing the distinctness of their characteristic markings. The author next states his views on the changes

which take place in the uterus during utero-gestation, and observes, first, that there is no similarity between the fibres of the round ligament and those of the unimpregnated uterus, the latter being made up of spindle-shaped nucleated fibres, contained in a matrix of exceedingly coherent granular matter; that these fibres are best examined in portions which have been broken up by needles, in preference to thin sections; and that this tissue is well seen in the larger mammals, as in the Cow, &c. In the impregnated uterus the fibres are found much increased in size and distinctness, but devoid of nuclei and comparatively loosely connected; and the enlargement of these fibres is of itself sufficient to account for the increased volume of the gravid uterus, without supposing that a set of muscular fibres are formed in it *de novo*.

Hence he reasons that the unimpregnated uterus consists probably of little more than an assemblage of embryonic nucleated fibres, inactive until the ovum is received into it, after which their development commences and continues simultaneously and progressively with that of the fœtus; so that when this last has arrived at a state requiring to be expelled, the uterus has acquired its greatest expulsive power. Lastly, the author observes, since the fully-developed fibres cannot return to their former embryonic condition, they necessarily become absorbed, and a new set of embryonic fibres are formed for the next ovum, so that each fœtus is furnished with its own set of expulsive fibres; which view is in perfect accordance with the statements of Drs. Sharpey and Weber, with regard to the membrana decidua.

April 18, 1850.

The EARL OF ROSSE, President, in the Chair.

Robert Stephenson, Esq., was admitted into the Society.

The following papers were read:—

1. "On the Solution of Linear Differential Equations." By the Rev. Brice Bronwin, M.A. Communicated by S. Hunter Christie, Esq., Sec. R.S.

The methods employed in this paper to effect the solution or reduction of linear differential equations consist of certain peculiar transformations, and each particular class of equations is transformed by a distinct process peculiarly its own. The reduction is effected by means of certain general theorems in the calculus of operations.

The terms which form the first member of the first class of equations are functions of the symbols ϖ and τ , the latter being a function of x , and the former a function of x and D , x being the independent variable. This member of the equations contains two arbitrary functions of ϖ , and may therefore be of any order whatever. It likewise contains two simple factors, such for example as ϖ and $\varpi + nk$, which factors are taken away by the transformation em-